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Further Observations of the New Star in Perseus made at the Radcliffe Observatory, Oxford.

(*Communicated by Arthur A. Rambaut, M.A., Sc.D., F.R.S., Radcliffe Observer.*)

This paper is in continuation of the notes on the same subject published in the *Monthly Notices* for March, April, May, June, and November 1901.

No periodical fluctuation of brightness has been noticed, but a gradual diminution at the rate of about 0·01 mag. per diem, as remarked in the last paper (*Monthly Notices*, lxii. No. 1), has been maintained. Accordingly no attempt has been made to keep a continuous watch upon the star, and the observations have been made at comparatively long intervals.

The Nova continues to become more bluish. In the last paper it was pointed out that the star appeared for the most part colourless. From the observers' notes on colour in the present paper it will be seen that a bluish tint has for the most part prevailed.

The faintness of the object, its low altitude, and the increased twilight will probably prevent further observations until the autumn.

The following instruments were employed as indicated in the third column of Table II.

Barclay	10-inch equatorial, power	90.
	2·7-inch finder	„	13.
Heliometer	1·8 inch finder	„	19.

TABLE I.

List of Stars used for Comparison with Nova Persei.

Ref. No.	Name of Star.	Adopted Tabular Magnitude.	Authority for Magnitude.
54	Arg. Z. + 44°, 734	6·23	Radcliffe estimations on Harvard Scale.
58	+ 43, 730	6·57	„ „ „ „ „
61	+ 41, 631	6·00	Harvard Photom. D.M.
62	+ 41, 638	6·16	„ „ „
63	+ 42, 736	7·00	Adopted provisionally.
64	+ 43, 720	7·25	„ „
65	+ 43, 732	7·25	Harvard Photom. D.M.
67	+ 44, 714	7·37	„ „ „
70	+ 44, 732	7·32	„ „ „
71	+ 42, 772	7·52	„ „ „
72	+ 43, 766	8·0	Argelander D.M.
73	+ 44, 717	8·5	„ „

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Ref. No.	Name of Star.	Adopted Tabular Magnitude.	Authority for Magnitude.
74	Arg. Z. +44°, 742	7·76	Harvard Photom. D.M.
75	+43, 728	8·4	Argelander D.M.
76	+43, 729	8·7	" "
77	+43, 739	9·0	" "
78	+42, 776	7·8	" "
79	+42, 767	9·5	" "
80	+42, 768	8·9	" "
81	+43, 744	8·6	" "
82	+43, 746	9·1	" "
83	+43, 751	9·0	" "
84	+43, 749	9·0	" "

Table II.

Means of Estimations of Magnitude of Nova Persei.

G.M.T.			Observer.	Aperture of Telescope.	Reference Stars.	Mean Mag.	Adopted Mag. for the Night.
1901.	h	m		Inch.			
Nov. 15	7	30	R.	1·8	64, 65	7·17	7·17
21	8	30	C.	2·7	65, 64, 70, 67	7·37	7·24
	9	20	W.	2·7	65, 64, 54	7·21	
	9	20	W.	10·0	65, 64, 58, 62–63	7·07	
28	5	45	W.	2·7	65, 64	7·25	7·20
	5	45	W.	10·0	65, 64, 58, 63, 62, 61	6·90	
	5	45	R.	2·7	64, 65	7·20	
	7	0	C.	2·7	64, 67, 65, 70	7·37	
	7	0	C.	10·0	65, 70	7·28	
Dec. 2	8	35	R.	2·7	65, 64	7·30	7·35
	8	55	R.	10·0	65, 64	7·40	
4	8	30	W.	2·7	65, 64, 58, 70	7·24	7·32
	8	35	W.	10·0	65, 64, 54, 70	7·16	
	8	45	R.	2·7	65, 64, 58, 70, 67	7·42	
	8	50	R.	10·0	65, 64	7·50	
1902.							
Jan. 4	9	45	C.	10·0	65, 71, 72, 70	7·52	7·52
28	10	8	C.	10·0	71, 72, 73, 74	7·97	7·97

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G.M.T.	Observer.	Aperture of Telescope.	Reference Stars.	Mean Mag.	Adopted Mag. for the Night.
1902. h m		Inch.			
Feb. 10 11 30	R.	2·7	71, 75, 73, 72, 77	8·08	8·27
11 30	R.	10·0	71, 76, 73, 72, 77	8·46	
Mar. 12 10 30	R.	10·0	77, 72, 73, 71, 78, 76, 80, 79, 81, 82, 83	8·66	8·66
29 10 53	C.	10·0	77, 81, 82, 83, 84, 76	8·80	8·80

Observers' Notes on the Estimation of Magnitude.

1901.

Nov. 15. The Nova, by averted vision, appeared much brighter than other stars of the same magnitude. This peculiarity caused a difficulty in estimating magnitudes. It was not easy to get rid of the bias formed by the first view of the Nova before placing it and the comparison stars successively in the centre of the field. Sky foggy.

Nov. 21. With the 10-inch, power 90, Nova is ½ mag. fainter than No. 58. Bright moonlight (C.). The image of Nova in the 10-inch is sharp and in good focus with those of other stars. No nebulosity, but the sky is moonlit (W.).

Dec. 4. In comparing Nova with Nos. 65 and 64 in the 10-inch, using power 90, I found it was necessary for the best definition to focus each star separately when in centre of field. The margin of the image of Nova seemed narrower to-night than on November 28. No. 64 is duller than No. 65, but I thought its image a trifle larger than No. 65. Sky is clear, but there is some ground-fog, and horizon stars are nearly obliterated (W.). Sky is somewhat foggy, but the field around No. 64 seems blacker than that around the Nova (R.).

1902.

Jan. 28. Observations much interrupted by cloud.

Feb. 10. Field of 2·7-inch "Finder" not clear; object-glass fogged with condensation.

Mar. 12. Nova in the 2·7-inch "Finder" is brighter than No. 77, and fainter than No. 72.

Mar. 29. Passing clouds very troublesome.

Observers' Remarks on Colour of Nova and Comparison Stars.

1901.

Nov. 21. Nova bluish-white in the 10-inch (C.). With the 10-inch, No. 64 reddish; No. 58 very red; a suspicion of red fringe to Nova (W.).

Nov. 28. No. 64 is red in the 2·7-inch. With the 10-inch No. 64 is light red; No. 58 is strongly tinged with red; and the spurious disc of the image of Nova is pearly white with fainter soft white margin (W.). Nova is bluish-white in the 10-inch, with powers 90, 180, and 250 (C.).

Dec. 2. Nova white and No. 64 orange-red in the 10-inch.

Dec. 4. In the 10-inch Nova is opaque-white with a bluish tinge (very slight tint); No. 65 is very light yellow tint and No. 64 a decidedly reddish tint (W.).

1902.

Jan. 4. Nova white in 10-inch. Nos. 70 and 72 deep orange.

Jan. 28. Nos. 72 and 74 orange in the 10-inch. Nova white.

Feb. 10. In the 10-inch No. 72 orange-red and Nova dull.

Mar. 12. Nova is dull and bluish in the 10-inch; No. 72 is orange-red.

Mar. 29. Nova is bluish and dull in the 10-inch.

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The observers were :—Mr. Wickham, indicated by W.
Mr. Robinson, „ R.
Mr. McClellan, „ C.

Radcliffe Observatory, Oxford:
1902 *June* 10.

Further Observations of the New Star in Persus (5).

By A. Stanley Williams.

My early observations of this star up to 1901 June 10 have already been communicated to the Society.* The present paper contains the continuation up to the present time. The photometric magnitudes of a number of the fainter stars in the neighbourhood of the Nova have recently been published by Messrs. G. Müller and P. Kempf in the *Astronomische Nachrichten*, No. 3779, and these magnitudes have been adopted for the comparison stars in reducing the observations. The following is a list of the comparison stars used, with the magnitudes according to Müller and Kempf. The first column contains the designation of the star employed in the present observations.

Comparison Stars.

Designation.	Name.	Magnitude.
(32)	32 Persei	5·18
(36)	36 Persei	5·54
(30)	30 Persei	5·65
b	B.D. + 43°·730	6·57
a	„ + 44°·734	6·61
c	„ + 43°·732	7·41
g	„ + 43°·729	8·70
h	„ + 43°·739	9·11

The above magnitudes have been used in reducing all the telescopic observations. But for those made with the opera-glass the magnitudes of *a* and *b* have been assumed to be 6·25 and 6·50. Both these stars are accompanied by bright companions, and the presence of the latter evidently affected the brightness as observed with the opera glass. The increase of brightness indicated by the above values is less than what should result from combining the light of the component stars of the two groups, but their adoption renders the opera-glass observations comparable with the telescopic.

According to the photometric observations *b* should be

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* See *Monthly Notices*, vol. lxi. pp. 337, 396, 480 and 550.